

## **REMARKS**

The Examiner has objected to claims 2, 6-8 under 35 U.S.C. 112, first paragraph for failing to meet the written description and enablement requirements. In particular, the Examiner objects to the fact that there is not an enabling description as to how to make the red cabbage extract.

Applicant respectfully submits that it is well known how to obtain a red cabbage extract. A search of the internet shows that the method of preparing red cabbage extract has been well known prior to the international filing date of the present application. See [www.chemistryland.com/CHM107Lab/Lab1/Lab1PreparingCabbageExtract.htm](http://www.chemistryland.com/CHM107Lab/Lab1/Lab1PreparingCabbageExtract.htm). We enclose a copy of this description which is indicated as last being updated on 3-1-04. This is earlier than the international filing date.

In addition, red cabbage extract is readily available for purchase according to the Applicant's information.

It is therefore respectfully submitted that it is well within the skill and knowledge of a person skilled in the art to prepare red cabbage extract. The Applicant need not provide additional description of the red cabbage extraction process in order to meet the enablement and written description requirements.

Applicant also respectfully points out that US Patent No. 6,589,761 of Freadman cited by the Examiner in support of an obviousness objection on the grounds that it teaches the use of red cabbage extract as a pH color indicator does not provide details of how to extract natural colour indicators derived from plants despite claiming same in claim 7 of that patent. The granting of claim 7 of US Patent No. 6,589,761 of Freadman by the USPTO is consistent with the Applicant's submission that the preparation of such plant extracts is well known in the art.

The Examiner further takes the position that the description does not enable the claimed values of 27.5 % or 10 to 27.5% of indicator means since there is no way to reproduce the process of extracting cabbage. Applicant respectfully disagrees. As submitted above, it is well known in the

art how to produce red cabbage extract. No further written description is required to enable a person skilled in the art to produce red cabbage extract.

The Examiner has further held that the disclosure does not enable the range of 10 to 27.5% in claim 7. Applicant respectfully disagrees. The disclosure provides at page 3 that concentrations of the pH indicator in the range of 10% to 20% were necessary to show color changes. The experiments described on page 3 related to grape extract. However, at page 4, line 1, it is disclosed that the experiments were repeated with cabbage extract. At the bottom of page 4, it is specified that upper end of the range for red cabbage extract is 27.5%. Hence, the range in claim 7 is supported by the disclosure.

The Examiner has objected to claims 2, 6-8 as being indefinite on the grounds that it is not clear what "a concentration of... about 27.5%" means within the concentrate. Applicant respectfully submits that it is clear with reference to page 4 of the disclosure that the claimed percentage of red cabbage pH indicator is the parentage by weight with reference to the overall amount of the claimed concentrate. It is explicitly expressed on page 4 of the disclosure that all percentages are expressed in mass/mass. It is therefore submitted that claims 2, 6 and 8 meet the requirements of 35 U.S.C. 112.

The Examiner has objected to claims 2,6-8 as being obvious having regard to Fisher in view of Freadman.

The present invention is directed to a concentrate that effectively utilizes red cabbage extract as a natural pH color indicator specifically for agricultural applications. Applicant has determined the minimum amounts of red cabbage extract that are required in the concentrate in order to obtain a visibly discernable color change thereby providing a concentrate that is an effective pH color indicator for agricultural applications.

Fisher teaches a pH indicator that includes chemicals such as methyl red, resorcin blue, 2,5-disphenol and chlorophenol red. It does not include a naturally occurring pH indicator.

Freadman discloses that indicators suitable for the disclosed method for detecting bacterial growth may also include natural indicators in the form of compounds derived from plants such as beets or cabbage.

However, Freadman does not disclose or suggest the use of a natural pH indicator for agricultural applications. Furthermore, Freadman does not provide any teaching of how to formulate a concentrate that has an effective level of red cabbage extract to show a visibly detectable color change for agricultural applications. The disclosure of Freadman does not teach a use of a natural pH color indicator that will work for agricultural applications. The formulation of an effective concentrate for agricultural applications by the Applicant with adequate levels of red cabbage indicator required significant work and innovation. Applicant has surprisingly discovered that substantially increasing the amount of red cabbage indicator in the concentrate is necessary to obtain a visibly discernable color change with changing pH in agricultural formulations. It was not obvious that simply augmenting the concentration of red cabbage extract would be sufficient. Typically, a concentrate will include red cabbage extract at a concentration described as having at least 1600 color units (w/w), which corresponds to an active component (anthocyanin) concentration of approximately 5% (w.w). Red cabbage extract was expected to be used at a level of 0.02- 0.2% (w.w.). Applicant has determined that for optimum indicating properties, a 27.5% (w.w) rate of red cabbage extract is added to the adjuvant. This is a concentration of 137.5 -1375 times more than the concentration expected by a person skilled in the art, as evidenced by concentration levels recommended by a manufacturer of red cabbage extract.

Furthermore, formulating the concentrate with an increased concentration of red cabbage extract was difficult requiring skill, labor and ingenuity. This was not obvious to try and has not been successfully accomplished by others to the Applicant's knowledge for agricultural applications.

Applicant has added new claim 9 which recites that the concentrate has a pH modifying agent that includes an acid that may be acetic acid, orthophosphoric acid and citric acid. Support for this claim may be found in the last paragraph of page 3 and the first paragraph of page 4 of the disclosure which states that the grape extract was tested in the formulations disclosed in United States Patent No. 5,278, 132 and excellent results were obtained. It is further stated at the beginning of page 4 that these experiments were repeated using red cabbage extract with success

although higher concentrations were necessary. Applicant submits that the formulations disclosed in United States Patent No. 5,278, 132 include acetic acid, orthophosphoric acid and citric acid.

Applicant submits that it is a surprising and unexpected result that the concentrate works so well as a pH indicator with red cabbage extract as the natural color indicator in the presence of acids as strong as acetic acid, orthophosphoric acid and citric acid. A person skilled in the art would have expected the acid to degrade the red cabbage extract thus inhibiting its function as a color indicator showing a change of pH. Surprisingly, the extract functions very well in the presence of these acids. It is submitted that new claim 9 is novel and unobvious over the cited references.

It is therefore submitted that the combination of Fisher and Freadman does not render the present invention obvious.

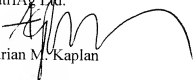
A petition for an Extension of time requesting an extension of three months for filing the subject response is enclosed.

Favorable reconsideration and allowance of the present invention are respectfully requested.

In view of the Applicants' discussion and the inventor's Declaration, Applicants believe that the pending claims are in condition for allowance. Early notification to that effect is respectfully requested. If it is believed that a further interview will expedite prosecution, the Examiner is invited to contact Applicants' attorney Adrian M. Kaplan at Heenan Blaikie LLP, at (416) 643-6972, at her convenience.

Respectfully submitted,

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